

## PESTICIDES

## A Burning Question

### Do Farmer-Set Fires Endanger Health?

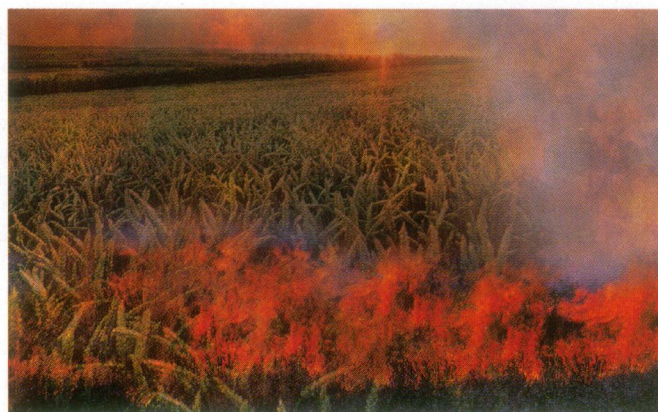
Fall is burning season in the wheat fields of eastern Washington State. To prepare for planting in 1998, farmers burned about 229,000 acres of wheat stubble, an increase over recent years. Although a tighter state permitting system substantially reduced the acreage burned in 1999, clean air activists are concerned that the state has not tightened up enough.

The fires are used to help control crop diseases and to clear fields before using a relatively new farming technique called minimum tillage, which reduces soil erosion but requires machinery that can get clogged by heavy stubble. Nationally, fires are also used to clear stubble from grass seed fields in Idaho, rice fields in California, and sugarcane fields in Florida. In eastern Washington, grass growers stopped burning their fields in 1998 in accordance with an agreement with the state's Department of Ecology, which regulates agricultural burning in Washington. But the emphasis on minimum tillage, among other factors, has caused a larger number of wheat

fires to take grass's place.

Burning is a major source of air pollution in Spokane and surrounding areas. "It's a unique pollution, different from auto exhaust," says Patricia Hoffman, a veterinarian who heads Save Our Summers, a citizens group that opposes agricultural burning. "It's a high-concentration, high-intensity exposure for a short period. It's very dangerous for people with asthma or heart or lung problems."

Of Spokane County's approximately 500,000 residents, she says, about 40,000 have asthma and 3,000 have emphysema. These asthma rates are around twice the national average. Timothy Krautkraemer, age 10, is a Spokane asthma patient who stays indoors during the burning season. "He can't participate in activities that others participate in," says his father, Jeffrey. "It's pretty rough on a 10-year-old."



**A hot issue.** Farmers argue that agricultural burning is a necessary tool, but neighbors worry that the smoke may lead to health problems such as asthma, particularly in children.

The family has joined a federal lawsuit with another family and Save Our Summers against the Washington Department of Ecology. They argue that the burning constitutes discrimination against asthma sufferers, violating the Americans with Disabilities Act.

Michael McCarthy, a Spokane pulmonary pediatric specialist, says he's "totally convinced [the burning is] an extremely important public health problem." McCarthy believes the increased asthma rates are due to the smoke

## AGRICULTURE

## Debating Dursban

### EPA Reviews Chlorpyrifos Risk

U.S. environmental officials say that one of the most widely used pesticides, Dursban, may be unsafe for people who are exposed to it either in home gardens or in crop fields. (Dursban is also often used in and around schools and hospitals, and in pet collars.) The U.S. Environmental Protection Agency (EPA) said in an October 1999 preliminary scientific assessment titled *Hazard Assessment of Organophosphates* that it is particularly concerned with the insecticide, which is made by Dow Chemical Company and applied more than 20 million times a year in the United States. "This preliminary risk assessment indicates that risks from the use of chlorpyrifos in residential settings, as well as its risks to applicators, are of concern," the EPA said in a statement released to the press. The EPA is largely concerned with the Dursban poisoning cases reported to federal officials: of 325 cases reported from 1993 to 1996, one-fourth required hospitalization.

Chlorpyrifos, the active ingredient in Dursban, is being reviewed under a process developed by the EPA and the U.S. Department of Agriculture's Tolerance Reassessment Advisory Committee to determine whether existing EPA daily dose and other requirements meet new safety standards mandated by the Food Quality Protection Act (FQPA) of 1996. The FQPA requires chemical companies to take extra safety steps with their products, such as significantly reducing acceptable levels of exposure in order to protect children and other vulnerable populations who may be particularly sensitive to adverse effects. Chlorpyrifos is one of the 9,000 chemicals the EPA is analyzing in households and in drinking water in order to further implement the FQPA.

Chlorpyrifos belongs to the class of chemicals known as organophosphates, which have been shown to negatively affect the human nervous system with symptoms such as blurred vision, muscle weakness, headaches, and memory problems. In addition to the acute poisoning of the neurologic system, chlorpyrifos has been associated with chronic neurobehavioral effects that include confusion, drowsiness, and depression. According to a 1994 survey of ready-to-eat foods conducted by the U.S. Food and Drug Administration (FDA), chlorpyrifos was the second most commonly detected pesticide in food. The FDA's sample included many foods eaten by infants and children. According to the EPA assessment, data from two human studies suggest that humans are as sensitive and possibly even more sensitive than animals to the effects of chlorpyrifos. The EPA also said that most Americans have at least a tiny amount of the chemical in their bodies.

Dow Chemical responded to the EPA's assessment with a letter stating that the EPA's analysis was misleading and based on fundamental scientific errors. William L. Chen, the study director and coauthor of Dow's response, wrote, "Three decades of use have shown that unless seriously misused, chlorpyrifos products have wide margins of safety that protect users and consumers, including infants and children." Dow's complaint is that the EPA is basing its assessment on information that is "not reflective of real world exposure and risk" and that "[m]any of the risk assessments conducted by the EPA were based on formulations and labels not currently available or utilized in the marketplace."

The EPA report outlined potential health risks but did not make any final decisions about restricting the use of Dursban or implementing the use of warning labels. The EPA plans to issue a final decision about use of the pesticide this summer. —**Lindsey A. Greene**